

Short communication

HEALTH RISKS OF THE INFORMAL WASTE COLLECTING SECTOR IN COUNTRIES IN SOUTH-EAST EUROPE

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ABSTRACT

The waste management systems in some countries in south-east Europe are underdeveloped. The main driving force for environmental reform in these countries is the aspired accession to the European Union (EU). The waste recycling industry still predominantly depends on the informal waste management sector. These waste collectors, most of whom are Roma, are among the most deprived populations in south-east Europe. They are affected by limited formal education, poor housing conditions, a low status in the labour market and a precarious income. Previous studies revealed the high rates of chronic illness, such as back or neck pain, problems with legs and feet, depression and anxiety. Their poor health status is the result of two groups of factors: their socioeconomic status disadvantages and their exposure to waste collection-related occupational hazards. Further studies are needed to assess the role of occupational hazards in the poor health status of informal waste collectors in south-east Europe.

Keywords: INFORMAL WASTE COLLECTION, OCCUPATIONAL HEALTH, SOCIAL DETERMINANTS OF HEALTH, WHO EUROPEAN POLICY FRAMEWORK HEALTH 2020, ROMA PEOPLE

BACKGROUND

Informal waste management poses many health and environmental risks. Socially disadvantaged populations, such as the Roma people, are more likely to be involved in informal waste collection (1). A large proportion of Roma live in countries in south-east Europe, where informal waste management is still common. However, there is a noticeable lack of data about the health status of the informal waste collectors (IWCs) in this part of Europe. Our analysis is based on the only comprehensive study of Roma IWCs in south-east Europe, namely, the Sustainable Waste Management Initiative for a Healthier Tomorrow (SWIFT) survey, led by the WHO Regional Office for Europe, and supported by available data from the south-east European countries.

THE INFORMAL SECTOR AND RECYCLING INDUSTRY IN SOUTH-EAST EUROPE

Informal waste collection (“informal recycling”) is defined as “individuals collecting, separating, classifying, and selling solid waste as a means of subsistence or supplementation of income” (2, p. 43). This informal sector has been active in south-east Europe for many years. However, the process of harmonization of environmental and other waste-related legislation with the EU has also impacted the sector (3,4). For example, new regulations oblige waste producers to ensure that a certain quantity of packaging materials they bring to the market are recovered and recycled (5). Such laws have led to growth in the recycling industry (in 2014, 42.3% of

packaging waste in Serbia was reused) (6). However, eco-friendly waste management is still largely inadequate, and the most urgent issues are “illegal dumping and overloaded non-sanitary disposal sites/landfills, often combined with uncontrolled burning of waste” (7, p. 15).

Moreover, the informal sector provides a large share of the materials for recycling companies. Between 2009 and 2014, the quantity of polyethylene terephthalate (PET), a type of recyclable plastic, collected by local public utility companies in Serbia remained at 1000 tons per year, and IWCs increased the quantities from 1800 to 6700 tons per year (8). Since the late 1990s, recycling materials have expanded from “paper and cardboard, non-ferrous metals, car parts and reusables” (5) to PET and other sorts of plastics, glass, electronic waste, et cetera. Indeed, the IWCs in the former Yugoslav Republic of Macedonia collect PET bottles (81%), cardboard (45%) and cans (42%) (9).

The comparative cost–efficiency is the reason for such a large share of recyclables collected by IWCs, who operate in the grey economy market, with a lack of occupational and safety standards. Clearly, IWCs provide less expensive materials to the next levels in the waste management chain. Even in the EU country Romania (Cluj-Napoca), IWCs were more efficient than the formal collecting system, with respect to performance, costs and capture rates, even though their working conditions were worse (5).

IWCs are always from marginalized, vulnerable and low-income groups of the population. Traditionally, the collection of scrap metal and cardboard has been limited to the Roma people. In the former Yugoslav Republic of Macedonia, 88% of IWCs declared themselves as Roma (9). New markets for recyclables, such as PET and other plastics, aluminium cans, electronic waste, glass and car batteries, have changed the structure of the IWC population. The elderly and other people with a low income have entered the market (10). However, recycling companies provide the only available data about the number of IWCs. In Serbia, the largest PET recycling company worked with 5176 IWCs in 2014 (8) and more than 30 000 IWCs participate in the packaging waste collection system (11). There are 5000 IWCs in Skopje, former Yugoslav Republic of Macedonia, alone (9,12).

HEALTH HAZARDS OF INFORMAL WASTE COLLECTION ACTIVITIES

There is more information about the health risks in the regulated solid waste collection as opposed to the informal waste collection sectors (2). Studies conducted in Argentina, Brazil, the Philippines, South Asia and Viet Nam, as well as in the United States of America and Canada, reveal that the health status of the “informal recyclers” is less favourable in many aspects compared to that of the general population, including lifespan, the risk of childhood death, the infant mortality rate and the perception of health and well-being. The question remains as to whether IWCs’ shortened lifespan, due to injuries, accidents and death, is the result of occupational or socioeconomic disadvantage (2).

Handling waste and recycling materials in developing countries is usually not protected by regulations and is therefore performed in poor working conditions (13). IWCs are exposed to health hazards related to the collection, storage and handling of materials for selling (dangerous materials and occupational injuries) (2). Also, IWC activities are detrimental to the environment (informal junkyards of plastics and other polluting materials).

There are different types of hazards associated with informal waste collection: ergonomic, chemical, biological, safety, physical hardship, psychosocial and environmental hazards for the entire community (13). A meta-analysis has shown that IWCs suffer from similar health problems: back pain and pain located in the arms, shoulders and legs; traumas, traffic accidents, lacerations and infections; and upper respiratory tract infections and bronchitis. High levels of heavy metals, such as lead, mercury and cadmium, are found in the blood of recyclers (2). Ray and colleagues found a higher prevalence of respiratory problems among ragpickers in India compared to the control sample (14).

FINDINGS ABOUT THE SOCIOECONOMIC AND HEALTH STATUS OF IWCS IN SOUTH-EAST EUROPE

While informal waste collection is still widespread in south-east European countries, there is a lack of in-depth studies. The WHO European Region SWIFT survey (the first Roma health and nutrition survey in Serbia) was conducted in 2009 on a sample of 1698 Roma from Belgrade Roma settlements, using a two-stage cluster sampling methodology and targeting children aged 6–59 months (15,16). The survey aimed to explore the Roma health status in a comprehensive manner, focusing on the social determinants of health. The questionnaire consisted of the following modules: socioeconomic status (housing, income, education and employment), access to health care, access to social welfare programmes, chronic health conditions, health of children aged under 2 years, nutritional status of children aged under 5 years, and occupational health. It was organized and managed by the WHO Country Office, Serbia (15). The survey was approved by the Ministry of Health of the Republic of Serbia and participants provided consent (15). Another survey was carried out in the former Yugoslav Republic of Macedonia in 2015 by Pakomak on a sample of 350 IWCs in 10 municipalities, focusing on their recycling activities and, to a lesser extent, their health status (9).

IWCs from south-east Europe are strongly affected by the social determinants of health, including a low formal education status, substandard housing conditions, a very low legal status in the labour workforce, a lack of financial resources and a precarious income, discrimination and the negative attitude of the majority of the population. A study from the former Yugoslav Republic of Macedonia has shown that around 33% of the IWCs (mostly Roma) lived in substandard or not permanent housing in Skopje (9). Serbian Roma IWCs (the operational definition being “informal waste collection was one of the three main sources of income”) had worse living conditions compared to the general population, those below the poverty line and non-IWCs (17) (see Table 1). In addition, 40% of IWCs in the former Yugoslav Republic of Macedonia and 66% of Serbian Roma IWCs aged over 18 years had no education (9).

Children from non-IWC families were more likely to have a vaccination card, which is associated with higher immunization coverage (Odds ratio (OR) = 3.7, Confidence interval (CI) (2.1, 6.7)) (16). Roma from IWC families were more likely to lack health insurance (OR = 5.3, CI (2.1, 13.4)) (15).

In the SWIFT survey, 74% of IWCs aged over 20 years reported at least one chronic illness. One third of IWCs suffered from back or neck pain and one quarter reported problems with their legs or feet. Respiratory health issues were reported among 19% of IWCs aged over 20 years (see Fig. 1). These health issues are probably associated with IWC daily activities of waste collection in streets and at disposal sites. For example, almost one third of IWCs aged over 20 years (32%) reported having been moderately limited in their daily activities in the previous six months, and 15% reported having being strongly limited due to health reasons. Further analyses should explore the causality of occupational hazards and other determinants of health (housing, poor nutrition, et cetera). Another issue is protection against waste-related health hazards. The findings from 2015 indicate that IWCs in the former Yugoslav Republic of Macedonia do not use protective equipment, such as gloves, mask, helmet and so on (9). This should be further explored because informal waste collection includes not only direct collection from waste generators (for example, shops and other small businesses) but also picking from communal waste containers and legal and illegal landfills.

CONCLUSION

The findings indicate that informal waste collection is associated with higher health risks. However, our assessment was based on self-reported data and allows for only tentative conclusions. Further studies should include different methodology, for example, measuring levels of hazardous chemicals in the blood.

On the one hand, informal waste activities cause health, safety and environmental problems (5). This workforce is in dire need of activities aimed at the prevention, detection, treatment and mitigation of occupational health-related diseases. However, in many cases they do not have full access to these specific public and primary health care services. On the other

hand, the informal sector provides a substantial income to IWCs and their families, as they do not have other realistic alternatives. Moreover, there is a strong link between the informal sector and the recycling industry, since IWCs are the most cost efficient providers of recycled waste (18). For that reason, further policy interventions should deal with IWC access to public and primary health care, the implementation of standards to ensure the use of protective equipment, and addressing the social and economic implications of informal waste activities. This is another area where the WHO European policy framework Health 2020 (19) and the United Nations 2030 Agenda for Sustainable Development (20) should be implemented. In order to tackle the poor health status of IWCs in south-east Europe, it is necessary to address other dimensions of vulnerability. The Roma population in Europe is disproportionately affected by poor health, which is recognized in Health 2020 (19), but it also appears to be disproportionately affected by informal waste collection health hazards. In addressing the complexities of informal waste collection, “integrated policy approaches designed to tackle the multiple causes of social exclusion” should be applied (19, p. 82).

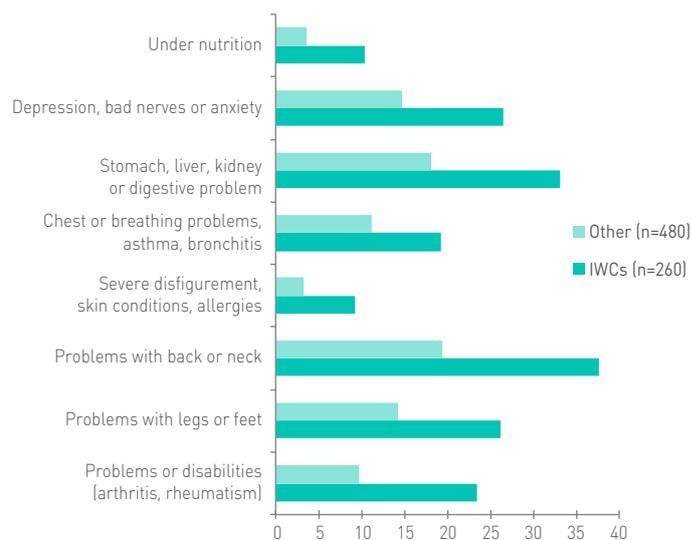
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FIG. 1. HEALTH STATUS OF ROMA IWCs AGED OVER 20 IN SERBIA (%)



Source: SWIFT (2009), $P < 0.001$.

IWCs: respondents from Roma settlements in Belgrade who stated informal waste collection as one of the three main sources of income.

Other: respondents from Roma settlements in Belgrade who did not mention informal waste collection as one of the three main sources of income.

TABLE 1. IWC HOUSEHOLDS' ACCESS TO BASIC INFRASTRUCTURE AND DURABLE GOODS IN SERBIA (%)

| | IWCs* (n=117) | Non-IWCs* (n=171) | General population** | General population-Urban settlements** | General population-Population below poverty line** |
|----------------------|------------------|----------------------|----------------------|--|--|
| Electricity | 52.1* | 77.2 | 99.8 | 99.9 | 97.3 |
| Running water supply | 47.9* | 90.0 | 95.2 | 99.4 | 71.2 |
| Sewage | 22.2* | 38.1 | 92.2 | 98.2 | 58.4 |
| Stove | 61.6* | 87.1 | 100.0 | 100.0 | 100.0 |
| Refrigerator | 50.4* | 84.8 | 76.0 | 69.0 | 76.3 |
| Car | 12.0* | 24.6 | 48.9 | 51.2 | 13.6 |

Sources: *SWIFT (2009), chi-square test significant $P < 0.05$; **Statistical Office of the Republic of Serbia (2008) LSMS.

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